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Influence of ZN(II) and MN(II) on catalytic activity of aspartic proteinases of Candida albicans

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Abstract

The interaction of secreted aspartic proteinases Candida albicans (SAP C. albicans) with ZnCl2 and MnCl2 was studied. Logarithms of stability constant from the data of electronic spectroscopy were calculated: lgβ = 4,73±0,20 for the complex [SAP C, albicans - Zn(II)] and lgβ = 7,02±0,20 for the complex [SAP C. albicans - Mn(II)]. The composition and maximum accumulation of complexes in solution were calculated. The optimal conditions of hydrolysis of the substrate, HAS (human serum albumin) in the presence of proteinases were determined: [HSA]=0.004 g/ml, [SAP]=2.33 μM, pH=4.5, the time of incubation of 25 min. The activity SAP C. albicans in the presence of ZnCl2 and MnCl2 in different concentrations in optimal conditions of enzymic hydrolysis was estimated. For the first time the activating action of ZnCl2 on catalytic activity of proteinase in concentration 5×10-7 mol/1 was discovered. The maximal rate of enzymic reaction (Vm), the Michaelis constant (Km) and constants of effects in presence and absence as the effector of ZnCl2 were calculated. The estimation of albuminatic activity of C. albicans infections family in different diseases localization in the presence and the absence as the effector of ZnCl2 was evaluated.

Keywords

Effectors, Enzymic catalysts, Kinetic parameters, Proteinases of Candida albicans